

PPP connection, which from the point of view of the IS-707-A.4 service option is now considered application data. The switch to IS-95 coverage is complete (Step 620). --

In the Claims

Please amend claim 1 as follows:

1. (Amended) In a CDMA (code division multiple access) communication system having a base station controller (BSC), a mobile station (MS) and a plurality of base station transceivers (BTS) with at least one BTS providing an area of non-high-speed data coverage and at least one BTS providing an area of high-speed data coverage, a method for switching a high-speed data packet data call to a non-high-speed data circuit switched data call, the method comprising the steps of:

identifying that the MS is exiting an area of high-speed data coverage and entering an area of non-high-speed data coverage;

negotiating service options between the MS and the BSC; and

switching from a high-speed packet data service option to a non-high-speed data circuit switched data service option.

Please amend claim 8 as follows:

8. (Amended) The method of claim 1 wherein the communication system has a PDSN (packet data serving node) connected to the BSC via an R-P interface and wherein the step of negotiating service options between the MS and the BSC further comprises the step of the BSC signalling to the PDSN via the R-P interface that it must alter the protocol stack used on the R-P interface.

Please amend claim 9 as follows:

9. (Amended) The method of claim 1 wherein the communication system has a PDSN with a PDSN link layer and an application interface layer and wherein the MS has a TE2 link layer wherein the step of switching from high-speed data packet data service option to non-high-speed data circuit switched data service option comprises

the step of the PDSN delivering data destined for the TE2 link layer to the application interface layer and data arriving from the TE2 being delivered by the application layer interface in the PDSN to the PDSN link layer.

Please amend claim 10 as follows:

10. (Amended) A CDMA (code division multiple access) communication system comprising:

a base station controller (BSC);

a mobile station (MS);

a plurality of base station transceivers (BTS) with at least one BTS providing an area of non-high-speed data coverage and at least one BTS providing an area of high-speed data coverage;

means for identifying that the MS is exiting an area of high-speed data coverage and entering an area of non-high-speed data coverage;

means for negotiating service options between the MS and the BSC;

and

means for switching from a high-speed packet data service option to a non-high-speed data circuit switched data service option.

Please amend claim 17 as follows:

17. (Amended) The CDMA communication system of claim 10 wherein the means for negotiating service options between the MS and the BSC further comprises:

a PDSN (packet data serving node) connected to the BSC via an R-P interface; and

means to have the BSC signal to the PDSN via the R-P interface that it must alter the protocol stack used on the R-P interface.

Amended
Please amend claim 18 as follows:

18. (Amended) The CDMA communication system of claim 10 further comprising:

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a PDSN with a PDSN link layer;

an application interface layer;

a TE2 link layer in the MS; and

the means for switching from high-speed data packet data service option to non-high-speed data circuit switched data service option further comprising means for the PDSN delivering data destined for the TE2 link layer to the application interface layer and data arriving from the TE2 being delivered by the application layer interface in the PDSN to the PDSN link layer.

Please amend claim 24 as follows:

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24. (Amended) The method of claim 22 wherein the communication system has a PDSN (packet data serving node) connected to the BSC via an R-P interface, further comprising the step of the BSC signalling to the PDSN via the R-P interface that it must alter the protocol stack used on the R-P interface.

Please amend claim 27 as follows:

27. (Amended) A CDMA communication system comprising:

a base station controller (BSC);

a mobile station (MS);

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a plurality of base station transceivers (BTS) with at least one BTS providing an area of non-high-speed data coverage and at least one BTS providing an area of high-speed data coverage;

means for identifying that the MS is exiting an area of non-high-speed data coverage and entering an area of high-speed data coverage;

A4 means for negotiating service options between the MS and the BSC;
and

means for switching from non-high-speed data circuit switched data service option to high-speed packet data service option.

Please amend claim 32 as follows:

32. (Amended) The CDMA communication system of claim 27 further comprising:

A7 a PDSN (packet data serving node) connected to the BSC via an R-P interface; and

means for the BSC signalling to the PDSN via the R-P interface that it must alter the protocol stack used on the R-P interface.

In the Drawings

Please amend Figure 4 as indicated in red on the enclosed drawing.

In the Abstract

Please amend the Abstract as follows:

A9 A method of moving from a 3G CDMA data session to a 2G circuit switched data session. The high-speed packet data service option of IS-2000 (3G) does not support the older low-speed IS-95 traffic channels (2G). When a mobile station, having an established high-speed packet data service call, moves from an area of 3G coverage to an area where only 2G coverage is available or where mixed 2G/3G coverage is available and the 3G coverage is congested, the call is switched from a 3G IS-2000 high-speed packet data service call to an IS-95 circuit switched data service call or an IS-707-A-5 low-speed/ packet data service option.



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CLAIMS:

1. In a CDMA (code division multiple access) communication system having a base station controller (BSC), a mobile station (MS) and a plurality of base station transceivers (BTS) with at least one BTS providing an area of non-high-speed data coverage and at least one BTS providing an area of high-speed data coverage, a method for switching a high-speed data packet data call to a non-high-speed data circuit switched data call, the method comprising the steps of:

identifying that the MS is exiting an area of high-speed data coverage and entering an area of non-high-speed data coverage;

negotiating service options between the MS and the BSC; and

switching from a high-speed packet data service option to a non-high-speed data circuit switched data service option.

2. The method of claim 1 wherein the area of high-speed data coverage is an area of IS-2000 coverage and the area of non-high-speed data coverage is an area of IS-95 coverage.

3. The method of claim 1 wherein the step of negotiating service options between the MS and the BSC comprises the BSC proposing to the MS that the existing high-speed data packet data service option be ended and a new non-high-speed data circuit switched data service option be connected.

4. The method of claim 3 further comprising the step of determining whether the MS can accept the service option change.

5. The method of claim 4 further comprising the step
5 of the BSC instructing the MS to release high-speed data physical channels and replace them with non-high-speed data physical channels.

6. The method of claim 5 wherein the communication
10 system has a radio interface relay layer, further comprising the step of switching the radio interface relay layer to RLP-1 protocol.

7. The method of claim 6 wherein the MS has an MT2
(mobile terminal) having a relay layer, an RLP (radio link
protocol), a PPP (point-to-point protocol), an IP (internet
15 protocol), a TCP (transport control protocol) and an application interface layer, further comprising the step of initializing the RLP, PPP, IP, TCP and the application interface layers such that the relay layer of the MT2 is not disturbed.

20 8. The method of claim 1 wherein the communication system has a PDSN (packet data serving node) connected to the BSC via an R-P interface and wherein the step of negotiating service options between the MS and the BSC further comprises the step of the BSC signalling to the PDSN via the R-P
25 interface that it must alter the protocol stack used on the R-P interface.

9. The method of claim 1 wherein the communication
system has a PDSN with a PDSN link layer and an application
interface layer and wherein the MS has a TE2 link layer
30 wherein the step of switching from high-speed data packet

data service option to non-high-speed data circuit switched data service option comprises the step of the PDSN delivering data destined for the TE2 link layer to the application interface layer and data arriving from the TE2 being
5 delivered by the application layer interface in the PDSN to the PDSN link layer.

10. A CDMA (code division multiple access) communication system comprising:

a base station controller (BSC);

10 a mobile station (MS);

a plurality of base station transceivers (BTS) with at least one BTS providing an area of non-high-speed data coverage and at least one BTS providing an area of high-speed data coverage;

15 means for identifying that the MS is exiting an area of high-speed data coverage and entering an area of non-high-speed data coverage;

means for negotiating service options between the MS and the BSC; and

20 means for switching from a high-speed packet data service option to a non-high-speed data circuit switched data service option.

11. The CDMA communication system of claim 10 wherein the area of high-speed data coverage is an area of IS-2000
25 coverage and the area of non-high-speed data coverage is an area of IS-95 coverage.

12. The CDMA communication system of claim 10 wherein the means for negotiating service options between the MS and

the BSC comprises means for the BSC proposing to the MS that the existing high-speed data packet data service option be ended and a new non-high-speed data circuit switched data service option be connected.

5 13. The CDMA communication system of claim 12 further comprising means to determine whether the MS can accept the service option change.

10 14. The CDMA communication system of claim 13 further comprising means to have the BSC instruct the MS to release high-speed data physical channels and replace them with non-high-speed data physical channels.

15. The CDMA communication system of claim 14 further comprising:

 a radio interface relay layer; and

15 means to switch the radio interface relay layer to RLP-1 protocol.

16. The CDMA communication system of claim 15 further comprising:

 a TE2 (terminal equipment) in the MS;

20 an MT2 (mobile terminal) with a relay layer;

 an RLP (radio link protocol);

 a PPP (point-to-point protocol);

 an IP (internet protocol);

 a TCP (transport control protocol);

25 an applications interface layer; and

means for initializing the RLP, PPP, IP, TCP and the application interface layer such that the relay layer of the MT2 is not disturbed.

17. The CDMA communication system of claim 10 wherein
5 the means for negotiating service options between the MS and the BSC further comprises:

a PDSN (packet data serving node) connected to the BSC via an R-P interface; and

10 means to have the BSC signal to the PDSN via the R-P interface that it must alter the protocol stack used on the R-P interface.

18. The CDMA communication system of claim 10 further comprising:

a PDSN with a PDSN link layer;

15 an application interface layer;

a TE2 link layer in the MS; and

the means for switching from high-speed data packet data service option to non-high-speed data circuit switched data service option further comprising means for the PDSN
20 delivering data destined for the TE2 link layer to the application interface layer and data arriving from the TE2 being delivered by the application layer interface in the PDSN to the PDSN link layer.

19. In a CDMA (code division multiple access)
25 communication system having a base station controller (BSC), a mobile station (MS) and a plurality of base station transceivers (BTS) with at least one BTS providing an area of non-high-speed data coverage and at least one BTS providing

an area of high-speed data coverage, a method for switching a non-high-speed data circuit switched data call to a high-speed data packet data call, the method comprising the steps of:

5 identifying that the MS is exiting an area of non-high-speed data coverage and entering an area of high-speed data coverage;

 negotiating service options between the MS and the BSC; and

10 switching from non-high-speed data circuit switched data service option to high-speed packet data service option.

20. The method of claim 19 wherein the area of high-speed data coverage is an area of IS-2000 coverage and the area of non-high-speed data coverage is an area of IS-95
15 coverage.

21. The method of claim 19 wherein the step of negotiating service options between the MS and the BSC comprises the BSC proposing to the MS the existing non-high-speed data circuit switched data service option be ended and
20 a new high-speed data packet data service option be connected.

22. The method of claim 21 further comprising the step of determining whether the MS can accept the service option change.

25 23. The method of claim 22 further comprising the step of the BSC instructing the MS to release non-high-speed data physical channels and replace them with high-speed data physical channels.

24. The method of claim 22 wherein the communication system has a PDSN (packet data serving node) connected to the BSC via an R-P interface, further comprising the step of the BSC signalling to the PDSN via the R-P interface that it must
5 alter the protocol stack used on the R-P interface.

25. The method of claim 23 wherein the MS has an MT2 (mobile terminal) having a relay layer, an RLP (radio link protocol), a PPP (point-to-point protocol), an IP (internet protocol), TCP (transport control protocol) and an
10 application interface layer, further comprising the step of removing the RLP, PPP, IP, TCP and the application interface layer such that the relay layer of the MT2 is not disturbed.

26. The method of claim 19 wherein the communication system has a PDSN connected to the BSC via an R-P interface,
15 the MS has an MT2 having an RLP wherein the step of switching from non-high-speed data circuit switched data service option to high-speed data packet data service option comprises the step of the BSC continuing to relay the content of RLP frames to the PDSN over the R-P interface.

20 27. A CDMA communication system comprising:

a base station controller (BSC);

a mobile station (MS);

a plurality of base station transceivers (BTS) with
at least one BTS providing an area of non-high-speed data
25 coverage and at least one BTS providing an area of high-speed data coverage;

means for identifying that the MS is exiting an area of non-high-speed data coverage and entering an area of igh-speed data coverage;

means for negotiating service options between the MS and the BSC; and

means for switching from non-high-speed data circuit switched data service option to high-speed packet data service option.

28. The CDMA communication system of claim 27 wherein the area of high-speed data coverage is an area of IS-2000 coverage and the area of non-high-speed data coverage is an area of IS-95 coverage.

10 29. The CDMA communication system of claim 27 wherein the means for negotiating service options between the MS and the BSC comprises means for the BSC proposing to the MS the existing non-high-speed data circuit switched data service option be ended and a new high-speed data packet data service
15 option be connected.

30. The CDMA communication system of claim 29 further comprising means for determining whether the MS can accept the service option change.

31. The CDMA communication system of claim 30 further
20 comprising means for the BSC instructing the MS to release non-high-speed data physical channels and replace them with high-speed data physical channels.

32. The CDMA communication system of claim 27 further comprising:

25 a PDSN (packet data serving node) connected to the BSC via an R-P interface; and

means for the BSC signalling to the PDSN via the R-P interface that it must alter the protocol stack used on the R-P interface.

33. The CDMA communication system of claim 31 wherein the MS has an MT2 (mobile terminal) having a relay layer, an RLP (radio link protocol), a PPP (point-to-point protocol), an IP (internet protocol), TCP (transport control protocol) and an application interface layer, further comprising means for removing the RLP, PPP, IP, TCP and the application interface layer such that the relay layer of the MT2 is not disturbed.

34. The CDMA communication system of claim 27 wherein the communication system has a PDSN connected to the BSC via an R-P interface, the MS has an MT2 having an RLP wherein the means for switching from non-high-speed data circuit switched data service option to high-speed data packet data service option comprises means for the BSC continuing to relay the content of RLP frames to the PDSN over the R-P interface.

35. In a CDMA (code division multiple access) communication system having a base station controller (BSC), a mobile station (MS) and a plurality of base station transceivers (BTS) with at least one BTS providing an area of non-high-speed data coverage and at least one BTS providing an area of high-speed data coverage, a method for switching a high-speed data packet data call to a non-high-speed data packet data call, the method comprising the steps of:

identifying that the MS is exiting an area of high-speed data coverage and entering an area of non-high-speed data coverage;

negotiating service options between the MS and the BSC; and

switching from high-speed packet data service option to non-high-speed data packet data service option.

36. The method of claim 35 wherein the area of high-speed data coverage is an area of IS-2000 coverage and the area of non-high-speed data coverage is an area of IS-95 coverage.

5 37. A CDMA (code division multiple access) communication system comprising:

a base station controller (BSC);

a mobile station (MS);

10 a plurality of base station transceivers (BTS) with at least one BTS providing an area of non-high-speed data coverage and at least one BTS providing an area of high-speed data coverage;

15 means for identifying that the MS is exiting an area of high-speed data coverage and entering an area of non-high-speed data coverage;

means for negotiating service options between the MS and the BSC; and

20 means for switching from high-speed data packet data service option to non-high-speed data packet data service option.

38. The CDMA communication system of claim 37 wherein the area of high-speed data coverage is an area of IS-2000 coverage.

25 39. The CDMA communication system of claim 37 wherein the area non-high-speed data coverage is an area of IS-95 coverage.

40. Computer-readable media embodying a program of instructions executable by a computer to perform a method for switching a high-speed data packet data call to a non-high-speed data circuit switched data call in a CDMA (code
5 division multiple access) communication system having a base station controller (BSC), a mobile station (MS) and a plurality of base station transceivers (BTS) with at least one BTS providing an area of non-high-speed data coverage and at least one BTS providing an area of high-speed data
10 coverage, the method comprising the steps of:

identifying that the MS is exiting an area of high-speed data coverage and entering an area of non-high-speed data coverage;

15 negotiating service options between the MS and the BSC; and

switching from high-speed packet data service option to non-high-speed data circuit switched data service option.

41. The computer-readable media of claim 40 wherein the
20 area of high-speed data coverage is an area of IS-2000 coverage and the area of non-high-speed data coverage is an area of IS-95 coverage.

42. Computer-readable media embodying a program of instructions executable by a computer to perform a method for
25 switching a non-high-speed data circuit switched data call to a high-speed data packet data call in a CDMA (code division multiple access) communication system having a base station controller (BSC), a mobile station (MS) and a plurality of base station transceivers (BTS) with at least one BTS
30 providing an area of non-high-speed data coverage and at

least one BTS providing an area of high-speed data coverage, the method comprising the steps of:

identifying that the MS is exiting an area of non-high-speed data coverage and entering an area of high-speed data coverage;

negotiating service options between the MS and the BSC; and

switching from non-high-speed data circuit switched data service option to high-speed packet data service option.

43. The computer-readable media of claim 42 wherein the area of high-speed data coverage is an area of IS-2000 coverage and the area of non-high-speed data coverage is an area of IS-95 coverage.

44. Computer-readable media embodying a program of instructions executable by a computer to perform a method for switching a high-speed data packet data call to a non-high-speed data packet data call in a CDMA (code division multiple access) communication system having a base station controller (BSC), a mobile station (MS) and a plurality of base station transceivers (BTS) with at least one BTS providing an area of non-high-speed data coverage and at least one BTS providing an area of high-speed data coverage, the method comprising the steps of:

identifying that the MS is exiting an area of high-speed data coverage and entering an area of non-high-speed data coverage;

negotiating service options between the MS and the BSC; and

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switching from high-speed packet data service
option to non-high-speed data packet data service option.

45. The computer-readable media of claim 44 wherein the
area of high-speed data coverage is an area of IS-2000
5 coverage and the area of non-high-speed data coverage is an
area of IS-95 coverage.